



Cost and value in medical education: the role of discounting

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Medical education is an expensive activity^[1]. It is also a very long-term activity. Medical education interventions today will have impact up for 40 years into the future as today's medical students continue to practice over a long career^[2]. The expense of medical education has led to a new interest in how to ensure maximum returns for educational investment. The new discipline of cost and value in medical education is clearly in its infancy with relatively few papers so far reporting rigorous results on the cost effectiveness or cost benefit or cost utility ratios of education interventions^[3]. Even those that do rarely take into account the effect that discounting might have on their calculations. This is a commonly overlooked and yet important shortcoming – particularly because the benefits of medical education may accrue many years after it has occurred.

Discounting is best understood by means of practical examples of its use. Let us look at the following example. A postgraduate training scheme for trainee geriatricians decides that it needs to improve the patient safety aspect of its curriculum. It spends 150 000 developing a new programme in patient safety. It thinks that the new programme will result in safer care into the long term and calculates that as a result eight never-events will be prevented over the next 10 years with a resultant 160 000 monetary saving to the institution by year 10 (a never-event is a critical incident that is so serious that it should never occur – an example is wrong site surgery). At face value, this investment seems sound – from both a clinical and financial perspective. However, when viewed from the point of view of discounting, a different picture starts to emerge. The practice of discounting has sprung from

the tangible reality that costs and benefits often occur at different times and the philosophical concept that people generally prefer to get returns now rather than in the future^[4].

The tangible reality of costs and benefits occurring at different times is clear in this example. The costs occur now but the returns are likely to happen over the following ten years. The public payer may prefer to get returns on investment now – however, gratification must be delayed. The delay in benefits accrued may sometimes be measured in months, years, or even decades. To complicate matters further, sometimes the investment must be both upfront and then continuous throughout the duration of the programme.

So how should we put a value on financial or educational benefits that will occur years into the future? Economists recommend that these future occurrences be expressed as present values^[5]. This is done by attaching less weight to future events. And the further that an event is into the future the greater the discounting that must be applied to it. The rate of discount may be at a fixed rate annually – say at 2% per year for 10 years. However, what happens in the future is always uncertain and so many economists would take into account what is commonly referred to as a catastrophic risk component in their predictions^[6].

In the above example, a catastrophic risk might be that all the trainee geriatricians who attend the patient safety programme leave the region over the following five years. In this unlikely albeit possible event, the investment occurs – but there is no return. Even in the absence of catastrophic events, the rigorous application of discounting will always favour short term educational projects over long term ones. This has

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led some commentators to suggest that the practice of discounting may be unfair to future generations of learners (and by consequence their patients). This is most apparent in very long term education projects. For example, today's public may ask why they should invest in undergraduate education of medical students – it might be as long as fifteen years before the public has fully qualified specialists as a result of their investment. One way around this is to have discount rates which decrease as time goes on. Another is to educate the public on the need for long term medical education investments. However, this scenario (if nothing else) is useful insofar as it should concentrate our minds on rates of return in medical education. All too commonly those who seek to change healthcare provision look to the future generation of healthcare professionals who are currently in undergraduate education or are about to enter undergraduate education. However, the healthcare workforce that we have currently is likely to be the workforce that we will continue to have for the next 15 or twenty years – so sometimes we might be better concentrating our efforts on them by means of providing continuing professional development that is relevant to population needs today^[7].

To conclude let us return to the example above. The postgraduate training scheme spends 150 000 developing the new programme in patient safety. It is initially convinced that this will improve patient safety and result in cost savings of 160 000 by year 10. However, discounting reveals that the savings are actually 145 000. Should the new programme still go ahead? This example is important as it reveals the benefits and limitations of discounting and indeed economic analyses more broadly. Discounting has revealed that the new programme no longer results in a financial return to the institution. However, the institution must ask itself: which is more important – a financial return or patient

safety? In this case, it seems self-evident that the prevention of never-events must take priority over what is a small financial loss. However, many medical scandals have resulted from too much emphasis on the financial as opposed to the clinical state of healthcare organisations. In certain institutions this has led to the neglect of vulnerable and often elderly people. Oversight of such organisations must pay closer attention to their clinical well-being^[8].

However, discounting undoubtedly has its place. Educators can occasionally promise too much – that their programme will result in quality improvement and cost savings – discounting might show that the promised costs savings might not be forthcoming. Being straightforward about this at the start is likely to substantially improve credibility in the long term.

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